Chapter 11. FATTY LIVER OR FOIE GRAS PRODUCTION

Fatty liver production is the process of force-feeding (cramming) geese, which are normally between 9-25 weeks of age, for a period of 14-21 days. During this period the weight of the liver will increase from an initial weight of about 80g to a final weight of between 600-1 000g. Geese, along with mule ducks, and to a lesser degree Muscovy ducks, are the most popular birds used for fatty liver production. As is the case for both mule and Muscovy ducks, corn is the nutrient of choice for the force-feeding period for geese because of its high starch content and relatively low cost. Fatty liver production is very specialised and to be successful both skill and sensitivity are required of the person force-feeding the geese.

FIGURE 40. Fatty livers with goose carcasses in the background (Poland)

(*Source*: Buckland, 1995)

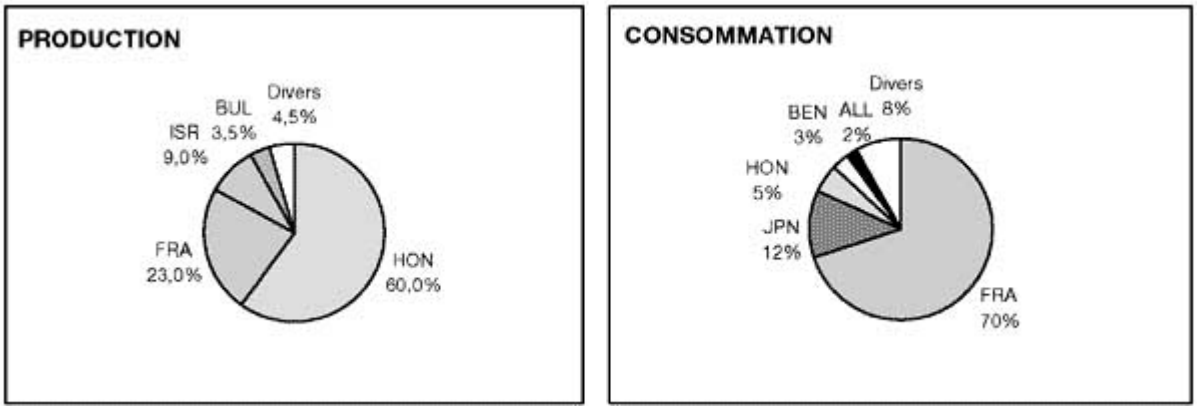
There are large differences between breeds and crosses of geese in their suitability for the production of fatty liver. Most important is that the breed responds to the force-feeding process by producing an enlarged liver of the desired size and within the 14-21 day period. Secondly, the temperament of the goose is important since the geese are handled up to 5-6 times per day and thus a quiet non-aggressive breed is required. Two breeds that meet these requirements are the Landes and Toulouse, with a genetically improved strain of the Landes being the most popular. A third desirable but not essential trait is that the breed be white since white down and feathers are more valuable than coloured down and feathers. On the other hand, the presence of dark pinfeathers on the carcasses of geese for fatty liver production is not as serious a problem as for geese produced for regular meat production since the carcasses from geese for fatty livers are generally cut up and sold as parts.

The structure of a fatty liver production system is often focused on the slaughter house which is usually responsible for both the processing and marketing of the livers. With this system the slaughter house will purchase the goslings, brood and grow them in fairly large

flocks and then, as the market dictates, deliver the geese to farmers who specialise in the force-feeding for the production of fatty livers. In some regions, the production of fatty livers is carried out more as a cottage industry with the production and processing of the fatty livers taking place on the farm.

The international marketing of goose Foie Gras is mainly concentrated in Hungary and France which represent three-quarters of both the world production and consumption (Figure 41). Market demand is one reason for geese not being of uniform age when they are used for fatty liver production. A second reason is that the age at which geese are to be used for fatty liver production depends on whether the geese are to be live plucked for their down and breast feathers before they are used for fatty liver production and, if so, how many times. If the geese have been plucked, force-feeding would not generally start until three weeks before the down and feathers are mature again so that mature down and feathers can be obtained at slaughter.

FIGURE 41. The production and consumption of goose Foie Gras by country



(*Source*: Guy, 1996)

FIGURE 42. A cooker to cook the corn for force-feeding geese (Poland)

(*Source*: Buckland, 1995)

The feed normally used for force-feeding geese during the fatty liver production period is, as previously mentioned, whole grain corn. Before feeding, the corn is cooked slightly in

hot water until the kernels are just soft to a firm squeeze. Fat (often from birds that were previously used for fatty liver production) can be added up to a level of 2 percent of the feed mixture. This is to lubricate the corn and to facilitate its flow to the crop of the bird. Geese are usually force-fed three times a day (morning, noon, and evening) and with the force-feeding period lasting approximately three weeks. It is possible to reduce the duration of the force-feeding period by cramming twice on three occasions each day. In this case, when the last bird of the flock is force-fed, the farmer begins again with the first bird, but with a minimum of 90 minutes between the two force-feedings. Under these conditions, the total number of meals is six per day and the total duration of the force-feeding period does not exceed 13-14 days. This intensive method saves corn, with 12-14 kg of corn producing a fatty liver instead of 17-20 kg needed with the traditional method.

FIGURE 43. An electric screw dispenser for force- feeding (France)

(*Source*: Buckland, 1995)

FIGURE 44. A manual screw dispenser for force-feeding (France)

(*Source*: Million, 1996)

FIGURE 45. Force-feeding geese with corn while they are in their pen (Hungary)

(*Source*: Buckland, 1995)

A new method of force-feeding is now becoming popular. This uses an uncooked mixture of 35 percent ground corn, 30 percent whole grain corn and 35 percent water which is fed using recently designed equipment. With this method it is recommended that the geese are force-fed four times (twice a day on two occasions as described above) for 18-21 days. The total amount of corn required is about 17-20 kg. The popularity of this technique is due to the large number of geese that can be force-fed by one producer in one day. This method is, however, confined to large commercial units because of the relatively high cost of the equipment. Various factors influence the number of geese that can be force-fed by one person: the method, the material, the skill of the producer and the available facilities. With the new method, using a wet mix as described above, a specialist can force-feed over 300 geese a day. A maximum of 80-100 birds can be force-fed by an experienced producer if an electrical automatic dispenser for whole grain is used (Figure 43). Using a manual screw dispenser, as shown in Figure 44, it is possible to force-feed only about 30 birds per day.

Because of the specialised and intensive nature of fatty liver production, the production units are generally small in size and usually not more than 200-250 geese are force-fed in a flock at any one time. The geese are housed in traditional pens for growing geese, either on slats or wire at 0.3 to 0.5 m^2 per bird, or on litter at 0.5 to 0.75 m^2 per bird. The geese must not have access to a run or range during the force-feeding period.

As mentioned, fatty liver production is a highly specialised aspect of goose production, and to be viable all aspects of a successful production and marketing system must be in place. These include: a reliable source of appropriate geese, a source of good quality corn, availability of specialised slaughter facilities and a market to which the chilled fatty liver can be shipped within 4-5 days or facilities for further processing (see Killing and Processing).

The production of fatty liver for foie gras however raises serious animal welfare issues and it is not a practice that is condoned by FAO. Currently European Union legislation allows force feeding to continue only in traditional areas of production. This situation could easily change and more restrictive legislation introduced. Elsewhere, a number of European states have already decided to ban altogether foie gras production including Poland.